

PATENT  
Attorney Docket No. 018842.1267

CLAIMS

What is claimed is:

1. A method for driving a hybrid compressor of an air conditioning system of a vehicle, wherein the vehicle comprises a first drive source, the air conditioning system comprises an evaporator, the hybrid compressor comprises a second drive source, and the hybrid compressor is driven by the first drive source via an electromagnetic clutch or the second drive source, or combination thereof, wherein the method comprises the steps of:

- (a) engaging the electromagnetic clutch;
- (b) detecting a temperature of air dispensed from the evaporator;
- (c) disengaging the electromagnetic clutch when the temperature of the air is equal to a first predetermined temperature; and

- (d) activating the second drive source, wherein steps (c) and (d) are performed simultaneously or substantially simultaneously.

2. The method of claim 1, further comprising the step of:

- (e) engaging the electromagnetic clutch when the temperature of the air increases from the first predetermined temperature to a second predetermined temperature, wherein step (e) is performed after steps (c) and (d).

3. The method of claim 1, wherein the first drive source comprises an engine of the vehicle, and the second drive source comprises an electric motor.

4. An air conditioning system for a vehicle, wherein the vehicle comprises a first drive source, the air conditioning system comprises a hybrid compressor and an evaporator, and the hybrid compressor comprises a second drive source and a temperature sensor for detecting the temperature of air dispensed from the evaporator, wherein the hybrid compressor is driven by the first drive source via an electromagnetic clutch or the second drive source, or a combination thereof, and the electromagnetic clutch is disengaged and the second drive source is active when a temperature of the air dispensed from the evaporator is equal to a first predetermined temperature.

5. The air conditioning system of claim 4, wherein the electromagnetic clutch is engaged when the temperature of the air is equal to a second predetermined temperature, and the second predetermined temperature is greater than the first predetermined temperature.

PATENT

Attorney Docket No. 018842.1267

6. The air conditioning system of claim 4, wherein the first drive source comprises an engine of the vehicle, and the second drive source comprises an electric motor.

7. The air conditioning system of claim 4, wherein the hybrid compressor further comprises a drive shaft driven by the first drive source or the second drive source, or a combination thereof.

8. The air conditioning system of claim 4, wherein the hybrid compressor further comprises:

a first compression mechanism comprising a first drive shaft driven by the first drive source; and

a second compression mechanism comprising a second drive shaft driven by the second drive source, wherein the first drive shaft and the second drive shaft are driven selectively or simultaneously.

9. The air conditioning system of claim 4, wherein the hybrid compressor further comprises:

a first compressor comprising a first drive shaft driven by the first drive source; and

a second compressor comprising a second drive shaft driven by the second drive source, wherein the first compressor and the second compressor are driven selectively or simultaneously.

10. A vehicle comprising:

a first drive source; and

an air conditioning system comprising a hybrid compressor and an evaporator, wherein the hybrid compressor comprises a second drive source and a temperature sensor for detecting the temperature of air dispensed from the evaporator, wherein the hybrid compressor is driven by the first drive source via an electromagnetic clutch or the second drive source, or a combination thereof, and the electromagnetic clutch is disengaged and the second drive source is active when a temperature of the air dispensed from the evaporator is equal to a first predetermined temperature.

11. The vehicle of claim 10, wherein the electromagnetic clutch is engaged when the temperature of the air is equal to a second predetermined temperature, and the second predetermined temperature is greater than the first predetermined temperature.

PATENT  
Attorney Docket No. 018842.1267

12. The vehicle of claim 10, wherein the first drive source comprises an engine of the vehicle, and the second drive source comprises an electric motor.
13. The vehicle of claim 10, wherein the hybrid compressor further comprises a drive shaft driven by the first drive source or the second drive source, or a combination thereof.
14. The vehicle of claim 10, wherein the hybrid compressor further comprises:  
a first compression mechanism comprising a first drive shaft driven by the first drive source; and  
a second compression mechanism comprising a second drive shaft driven by the second drive source, wherein the first drive shaft and the second drive shaft are driven selectively or simultaneously.
15. The vehicle of claim 10, wherein the hybrid compressor further comprises:  
a first compressor comprising a first drive shaft driven by the first drive source;  
and  
a second compressor comprising a second drive shaft driven by the second drive source, wherein the first compressor and the second compressor are driven selectively or simultaneously.